



INRA is offering a 15-month postdoctoral contract to deliver a thesis on modeling-projection in agro-ecosystem, based in Grignon, France

Research topic: understand long-term agro-ecosystem resilience and sustainability in response to land use practices and global change

The proposed research will be carried out as part of an international cooperation project led by the National Institute for Agricultural Research – France and the Florida International University – USA.

Climate Change will have a strong effect on agricultural systems globally through climate induced shifts in production and feedbacks to soil biochemistry. Understanding the impact of agricultural practices on soil carbon storage is the key to developing sustainable agricultural practices. Although managing for soil carbon storage can mitigate atmospheric greenhouse gas concentrations, increasing soil carbon sequestration through a variety of agricultural practices can have complicated effects. There is thus a clear need to resolve the uncertainties of agro-ecosystem management by utilizing modeling tools that are capable of estimating agro-ecosystem trajectories. Simulation models have been a useful tool to investigate the effects of rising atmospheric CO₂ concentrations and climate change scenarios on terrestrial ecosystems. We are interested in the integration of eddy covariance, remote sensing, and simulation models to provide the missing temporal and spatial information required by agro ecosystem models for improved yield prediction and for understanding changes in soil carbon storage. There is thus a clear need to produce relevant predictions of agro-ecosystem trajectories and to maximize sustainability goals. In this project simulations will be conducted under current and projected future climates and atmospheric CO₂ concentrations.

Duties:

The post-doctorate position will mainly focus on modeling exercises, collecting data from long-term experiments, running simulation models and analyzing modeling results. They will be expected to prepare manuscripts to submit to peer-reviewed journals.



Qualifications:

- A PhD in agricultural, ecosystem, bio-geoscience, or environmental science, or in related fields of science;
- A proven track-record in agro-ecosystems studies, field-based research and modeling;
- A demonstrated ability to conduct and complete research projects, generating and publishing their findings in international peer-reviewed journals;
- Strong written and oral communication skills in English.

Skills:

- A keen understanding of the complex biological problems in agro-ecosystems,
- Knowledge of carbon, nitrogen, heat and water dynamics in agro-ecosystems,
- Strong skills in ecosystem modeling and software development,
- Expertise in scientific computing, including proficient programming skills,
- Expertise in model evaluation, calibration, parameter optimization, sensitivity and uncertainty analyses, model improvement and scenario analyses,
- Strong statistical analysis skills

Salary: The net salary will be based on professional experience and skillsets.

Application: Please email your application to abad.chabbi@inra.fr with **Postdoc agro-ecosystems** in your title, no later than **July 23, 2018**.

Applications should include a cover letter highlighting current research, activities and skills relevant to the position; an updated resume; an extensive publication list as well as 2 or 3 of your choice publications; the names and contact information of at least two professional references familiar with your qualifications and skills; the copy of your degrees and transcripts of your academic record. All documents are to be submitted in English.